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BEEF, WINE AND IRON.

By John Phillips Street.*

The writer has recently examined a large number of samples of beef, wine and iron, and the results secured indicate certain important objections to the method of preparation recommended in the last National Formulary.

It is rather difficult to understand the reasons for the admission of a preparation of such doubtful efficacy into the Formulary. For all practical purposes, in most cases it is nothing more than a sherry wine of more or less questionable quality, to which has been added small quantities of meat extract and either tincture or citrate of iron. Meat extract is recognized as possessing but slight nutritive value, and the amount used in the preparation of beef, wine and iron would have but little value even as a tonic or stimulant. On the other hand, the iron in these preparations might be of value as a tonic during convalescence or in certain blood disorders, but it could be obtained much more cheaply and could be used much more intelligently in other forms and under a physician's directions. The use of such materials by an invalid on his own responsibility likewise exposes him to the danger of acquiring unconsciously the habit of alcoholism.

Because of the scarcity of analytical data concerning this material, I prepared several mixtures according to the directions of the Formulary, and also with some modifications. It was evident at once that wide variations in composition might arise from the

* Credit for the analytical work is shared by E. M. Bailey and H. R. Stevens.

quality of sherry wine and meat extract used. Furthermore, it is well known that many pharmacists at present substitute citrate of iron and ammonia for the tincture of citro-chloride of iron because of its greater solubility, and it was clear that the iron salt used would influence the quantity of iron present in the preparation,

Five mixtures were prepared, as follows:

No. 1. High-grade meat extract corresponding to Liebig's extract; tincture of citro-chloride of iron; all materials used in the exact proportions directed by the Formulary; alcohol not removed by distillation; solution not filtered.

No. 2. Half of No. 1 was filtered and the original volume restored by the addition of sherry wine.

No. 3. The same as No. 1, except that an equivalent amount of iron in the form of citrate of iron and ammonia was used; alcohol not removed; solution not filtered.

No. 4. Half of No. 3 was filtered and the original volume restored by the addition of sherry wine.

No. 5. Lower-grade meat extract, but with the quantity sufficiently increased to supply the same amount of nitrogen as 33 grammes of Liebig's extract; the exact procedure of the Formulary was followed, using the tincture of iron, and including the removal of the alcohol by distillation, and the double filtration; the sherry used was different from that used in the other four mixtures.

The analysis of the five preparations and a partial analysis of the sherry are shown in the following table:

PREIPARATION.	Specific Gravity, at 15.6° C.	Alcohol, by Vol.	Extract.	Ash.	Iron (Fe)	Total Nitrogen	Nitrogen as Ammonia.
		Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.
No. 1. High-grade extract; tincture of iron; not filtered,	1·02165	27·18	14·12	1·113	0·123	0·250	0·007
No. 2. High-grade extract; tincture of iron; filtered . .	1·01562	26·20	12·36	0·723	0·011	0·178	0·007
No. 3. High-grade extract; citrate of iron; not filtered,	1·02660	23·82	14·09	1·138	0·121	0·295	0·066
No. 4. High-grade extract; citrate of iron; filtered . .	1·02564	24·12	13·94	1·162	0·107	0·278	0·064
No. 5. Low-grade extract; tincture of iron; filtered . .	1·02654	19·50	12·95	1·401	0·024	0·216	0·009
Sherry used in Nos. 1 to 4	0·99602	21·50	5·53	—	—	—	—
Sherry used in No. 5	0·99939	22·75	6·75	—	—	—	—

Although the first four preparations were not made according to the Formulary as regards the removal of the alcohol, the composition would not be materially affected save in the case of the alcohol content, which we find to be very high, ranging from 23·82 to 27·18, against 19·50 in No. 5. The influence of the form of iron used is very marked. Where filtration is practiced and the tincture is used, the iron falls from 0·123 to 0·011 per cent., a loss of 91 per cent.; where the citrate of iron is used, filtration causes only a slight decrease in iron, from 0·121 to 0·107 per cent. In No. 5, where the tincture was also used followed by filtration, the low iron percentage of No. 2 is confirmed; the 500 c.c. of the preparation originally contained 0·631 gramme of metallic iron; while it actually contains, after filtration, only 0·123 gramme, a loss of 80 per cent. Filtration likewise causes a decrease in ash of from 1·113 to 0·723 per cent., a loss of 35 per cent. The higher ash in No. 5 is due to the presence of a large excess of sodium chloride in the meat extract used, a characteristic of most commercial extracts.

In the case of the nitrogen, where the tincture is used, filtration causes a reduction from 0·250 to 0·178 per cent., a loss of 29 per cent.; where the citrate is used the nitrogen loss is negligible. In No. 5 the amount of nitrogen added in the form of meat extract was 1·534 grammes; the first filtration removed 0·168 gramme, and the second 0·274 gramme, a total of 0·442 gramme, or, again, 29 per cent. of the total nitrogen.

The ammonia determination shows mere traces where the tincture was used, and as much as 0·066 per cent. where the citrate was used, incidentally showing that this determination gives valuable evidence as to the form of iron used.

The above facts show that the procedure of the Formulary results in a loss of 29 per cent. of the nitrogen, 35 per cent. of the ash and 91 per cent. of the iron. The substitution of citrate of iron and ammonia for the tincture of citro-chloride of iron, even when double filtration is practiced, prevents these losses almost entirely, besides furnishing a brighter and more attractive preparation.

Ninety-two samples collected from the stock of Connecticut druggists were analyzed. Tests were made for specific gravity, alcohol, extract, ash, iron, nitrogen and ammonia. While a great part of the beef, wine and iron on the market is made by the large wholesale drug houses, nearly every druggist puts out a brand

under his own name, so that practically there are as many nominally different brands as there are druggists. The results presented, therefore, do not mean that the Connecticut druggists are selling a lower-grade article than those of other States, for a large proportion of the samples were made elsewhere. In fact, some of the highest-grade preparations analyzed were made by local druggists and some of the lowest grade by wholesale houses of wide reputation.

It is unnecessary to give the detailed analyses of all the samples in this place, and only typical ones and the average of the ninety-two samples are shown in the accompanying table. The first thirteen samples were sold under the name of the wholesalers, the others under the name of the local druggists.

It is seen that the variations in composition are very wide in every ingredient. Attention at this time will be called only to the nitrogen and iron content. The Formulary states that "4 c.c. (1 fluidrachm) represent 0·13 gramme (2 grains) of extract of beef, and 0·128 c.c. (2 minims) of tincture of citro-chloride of iron." Translated into metrical and chemical terms, if a high-grade meat extract is used as directed, one fluidrachm should contain 0·0122 gramme of nitrogen and 0·0058 gramme of metallic iron, provided that there is no loss entailed by the method of preparation. My own preparations contained in one fluidrachm as follows:

No. 1, unfiltered . . .	10·2	milligrammes	N,	5·0	milligrammes Fe
No. 2, filtered	7·2	"	"	0·4	" "
No. 3, unfiltered . . .	12·1	"	"	5·0	" "
No. 4, filtered	11·4	"	"	4·4	" "
No. 5, filtered	8·9	"	"	1·0	" "

The figures obtained on preparations of known origin show the difficulty of establishing standards particularly for iron. In the light of the above data the use of the word "represent" in the Formulary is explainable, and while the makers of the Formulary doubtless intended to convey no false impression by their phraseology, it has certainly opened the way for gross misrepresentation in the sale of beef, wine and iron. Where the tincture of iron is used, followed by filtration, nearly all the iron is removed and about one-third of the nitrogen. If as much as one milligramme of metallic iron is present in a fluidrachm, therefore, it is impossible to assert with certainty that the preparation is not made by the

TYPICAL ANALYSES OF BEEF, WINE AND IRON.

No.	Specific Gravity.	Alcohol by Vol.	Extract.	Ash.	Iron (Fe).	Total Nitrogen.	Nitrogen as Ammonia.	1 Fluidrachm contains	
								Nitrogen.	Iron.
		Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Mgms.	Mgms.
18652	1·0197	15·19	10·01	2·157	·122	·223	·014	9·1	5·0
19512	1·0408	19·78	16·73	0·443	·032	·175	·016	7·3	1·3
18481	1·0359	20·22	15·55	1·172	·070	·157	·011	6·5	2·9
19464	1·0328	21·92	15·22	1·347	·100	·150	·006	6·2	4·1
18641	1·0343	14·55	13·65	0·357	·027	·148	·054	6·1	1·1
19545	1·0187	17·34	10·35	0·581	·151	·117	·065	4·8	6·2
19447	1·0400	18·69	16·23	0·623	·088	·099	·032	4·1	3·7
18695	1·0196	17·63	10·66	0·685	·152	·098	·050	4·0	6·2
19443	1·0252	18·65	12·38	0·421	·036	·079	·011	3·2	1·5
19440	1·0472	17·17	17·72	0·419	·113	·058	·028	2·4	4·7
18591	1·0568	16·44	20·05	0·365	·029	·040	·003	1·7	1·2
18615	1·0576	16·28	20·20	1·158	·100	·033	·003	1·4	4·2
18516	1·0603	16.87	21·04	0·864	·079	0·6	·002	1·1	3·4
19589	1·0440	19 61	17·54	1·313	·102	·539	·066	22·5	4·3
19441	1·0167	18·19	10·04	0 998	·148	·272	·063	11·1	6·0
18618	1 0198	17·91	10·76	1·693	·142	·269	·012	11·0	5·8
18614	1·0430	14·33	15·84	1·489	·133	·184	·007	7 7	5·6
19524	1·0406	18 90	16 47	1·207	·120	·073	·004	3 0	5 0
18560	1·0641	16·63	21·99	0·338	·100	·039	·002	1 7	4·3
19559	1·0725	8·48	21·86	0·495	·060	·018	·002	0 8	2·6
Max.	1·9725	25·46	24·25	2·157	·355	·539	·131	22·5	14·8
Min.	1·0013	8·48	6 07	0·303	·025	·018	·002	0·8	1·0
Ave.	1·0338	18·39	14 55	0·804	·114	·121	·033	5·0	4·7

official formula. My own preparation, No. 5, made strictly according to the Formulary, contains but one milligramme of iron per fluidrachm.

In the case of nitrogen, while my own preparations show that the filtered material may contain only 7·2 to 8·9 milligrammes per fluidrachm instead of 12·2 milligrammes, as calculated from the Formulary requirement of two grains of high-grade meat extract, the question of a minimum standard is not so difficult; for by no possible manipulation of the formula, provided meat extract of good

quality is used, could much less than seven milligrammes of nitrogen be furnished per fluidrachm, even if citrate of iron and ammonia is not used.

In the ninety-two samples the iron varies from ·025 to ·355 per cent. with an average of ·114. These variations are in great part due to the form of iron used, as has already been pointed out. In forty-six samples the label states that the citrate had been substituted for the tincture, while in seven the tincture and in one phosphate of iron is given as the source of the iron; in the other thirty-eight samples there is no statement as to the iron, although in the majority of them it is evident the citrate was used. The average iron content where the citrate is stated to have been used is ·119 per cent.; where the tincture was used ·090 per cent., or 24 per cent. less.

The nitrogen varies from ·018 to 0 539, with an average of ·121 per cent. Only nine samples contain over ·200 per cent., the amount found in our own preparation made according to formula; forty-two contain from 0·10 to 0·20 per cent., twenty-six from 0·05 to 0·10 per cent., and fifteen less than 0·05 per cent. As already stated, filtration of the preparation causes a considerable loss of nitrogen, and while one fluidrachm may "represent" 12·2 milligrammes of nitrogen, the actual content may be as low as 7 milligrammes per fluidrachm, even if made strictly according to formula. Admitting 7 milligrammes as the minimum standard, the analyses show that only twenty-three of the samples reach this figure; thirty contain from 4 to 6·8 milligrammes, twenty-five from 2 to 3·9 milligrammes and fourteen less than 2 milligrammes per fluidrachm. In other words, fifty-five samples, or 60 per cent., contain less than half the minimum standard. On the average it was found that about one-third of the nitrogen was in the form of ammonia, the greater part of which was derived from the citrate used. It is evident, therefore, what an insignificant amount of meat extract many of these preparations contain.

The propriety of the use of the word "beef" in connection with this material is indeed questionable, as only in rare cases is beef itself actually used; and even if used, only the extractives, of no nutritive value, would be present. Many of the labels on the samples bear other false and misleading statements, such as "one-half fluidounce contains the strength of one ounce of beef," "one ounce

contains the strength of one ounce of beef," "each fluidounce contains one ounce of essence of beef," and one tablespoonful contains the equivalent of 1½ ounces of lean meat." One sample bears two directly contradictory labels; the main label claims that "each fluidounce contains all the strength of 2 ounces of prime, fresh, lean beef;" the other label claims that "each fluidounce contains the extractive strength of ½ ounce of prime, fresh, lean beef."

To summarize the results of my analyses, sixty-nine samples are below N. F. strength in nitrogen, twenty-nine are misbranded, and all but one of the misbranded samples are likewise low in nitrogen. Only twenty-two samples out of ninety two satisfy the calculated N. F. requirement of 7 milligrammes of nitrogen per fluidrachm.

The responsibility for these deficiencies rests partly upon the Formulary itself, partly upon the quality and very largely upon the quantity of meat extract used in their preparation.

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HISTOLOGY OF HYOSCYAMUS MUTICUS.

By Charles M. Sterling.

Ever since the nature of the alkaloid occurring in *Hyoscyamus muticus* was determined, the plant has attracted considerable attention. According to Engler and Prantl (Natürlichen Pflanzenfamilien, volume 4, part 3, page 18), the plant grows abundantly in Egypt, and extends eastward into southern Asia to the East Indies. As shown by Mr. Edwin Dowzard in the American Journal of Pharmacy for May, 1908, several excellent assays of the drug have been made, and its superior quality well established.

As the drug appears on the market, it consists chiefly of fruiting stalks gathered after the corollas have withered and fallen off. As the leaves are very fragile, only the smaller ones remain unbroken. Usually both stems and leaves are in much broken fragments. The calyces are of much firmer texture than the leaves, and often retain their structure intact; and as they closely surround the partly matured fruits, these also are frequently well preserved.

The specimen of drug used in the preparation of this article was imported from Egypt.

STEM.

The inflorescence is a dorsi-ventral, one-sided raceme, having the younger portion rolled inward toward the ventral side. However, the inflorescence is almost identical with that of *Hyoscyamus niger*, which Tschirch insists is cymose in structure (Anatomischer Atlas, page 168), and not a close raceme or spike as it is usually described.

The stems are hollow, cylindrical, and longitudinally wrinkled, the younger parts being flattened in drying and often deeply furrowed on the ventral side. They are covered with trichomes, which are

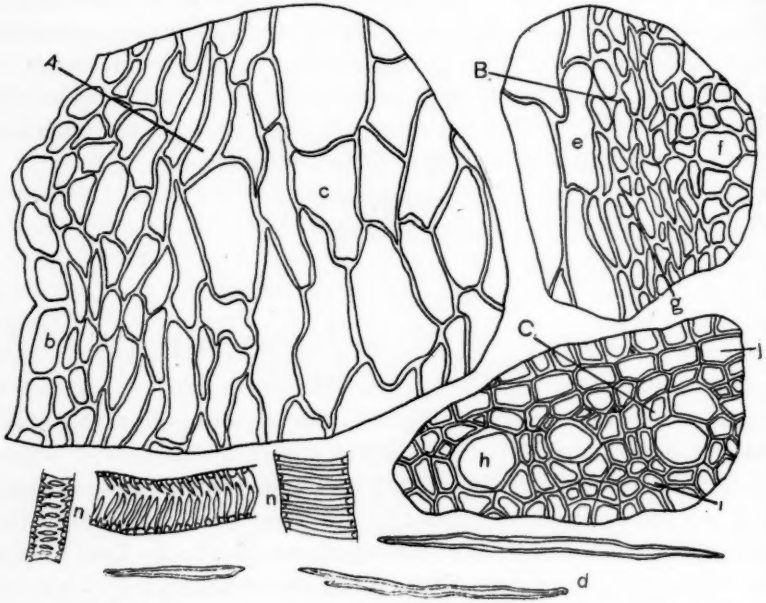


FIG. 1.—*A*, Cross section of stem, showing epidermis *b*, and cortex *c*. *B*, Cross section of stem extending from the cortex *e*, to the xylem *f*, showing the phloem at *g*. *C*, Portion of xylem showing ducts *h*, and wood fibers *i*, and medullary ray at *j*; *d*, wood fibers, separated by maceration; *n*, fragments of ducts from powder.

very prominent on the younger parts, while the older parts may be almost smooth. In color they are grayish-yellow to yellowish-brown, and as they may be 10 mm. or more in diameter, they show externally characteristics which readily distinguish them from the official *Hyoscyamus niger*.

The internal structure of the stem is peculiar and characteristic.

The epidermis consists of a row of regular cells having a thick cuticle. (*Fig. 1, b.*) Lying adjacent to the epidermis is the cortex, composed of large, thin-walled cells which are tangentially stretched. (*Fig. 1, c.*) In a stem measuring 7 mm. in diameter, the cortex is about 15 cells in width. These cells measure radially from 10 microns near the epidermis to 70 in the central part of the cortex, and tangentially from 25 to 150. The vascular bundles are bicollateral, having small groups of phlœm adjoining the medulla as well

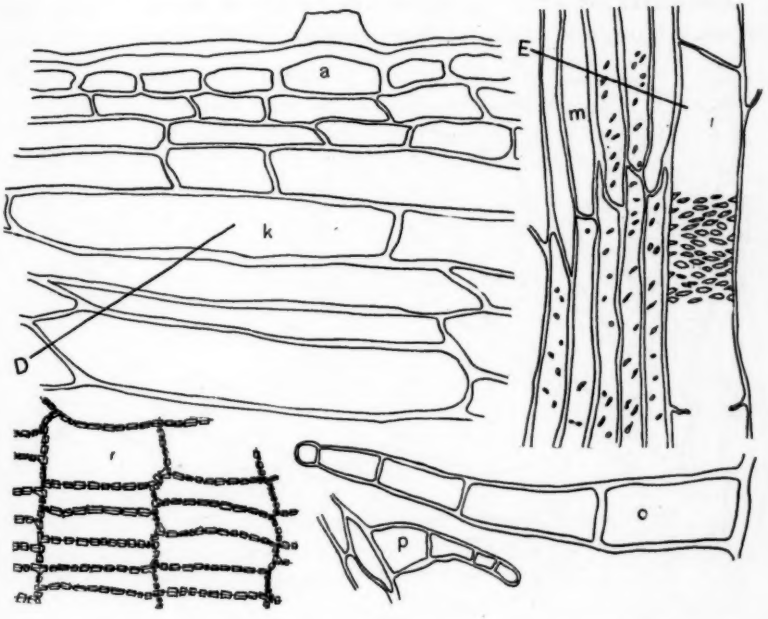


FIG. 2.—*D*, Longitudinal section of stem; epidermis, *a*; cortex, *k*. *E*, Longitudinal radial section of xylem; *i*, duct, and *m*, wood fibers; *o*, a trichome from the inner surface of the calyx; *p*, trichome from stem; *r*, longitudinal radial section of medullary ray.

as the larger groups adjacent to the cortex. The xylem is composed for the most part of wood fibers and ducts. (*Fig. 1, C.*) The ducts are relatively few, and occur singly or in groups of two or three, rarely more, and are annular, spiral, scalariform or reticulate in structure.

The latter may contain either simple or bordered pores. The xylem is rich in fibers which are relatively thick-walled. (*Fig. 1, i.*)

They are long and slender, with sloping or irregular ends (*Fig. 2, m*), and have numerous circular or slit-like pores which may be either straight or oblique. The fibers measure from 10 to 25 microns in width, by 350 to 900 in length.

The medullary rays are composed of cells very regular in form. They are seldom more than one cell wide, and contain many fine pores. (*Fig. 2, r.*)

LEAVES.

The leaves are very fragile and are usually in much broken fragments. However, some of the smaller leaves from the fruiting

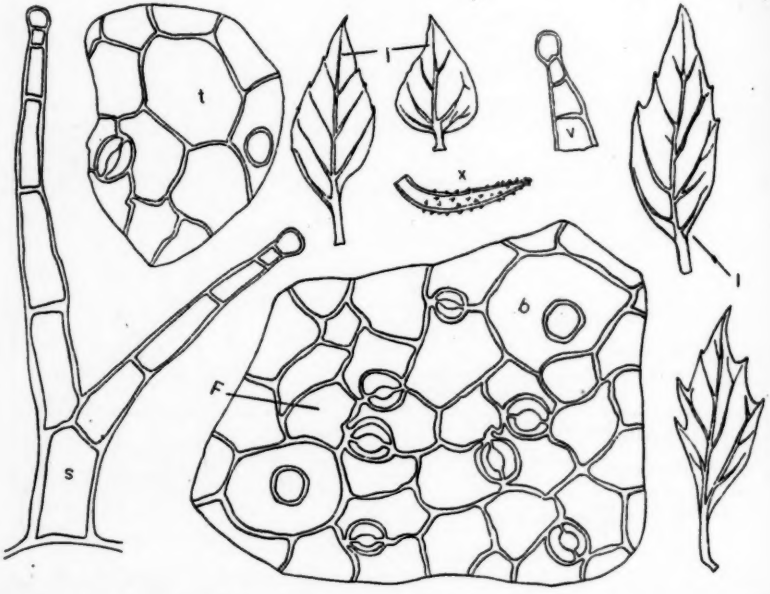


FIG. 3.—*F*, Surface view of epidermis of leaf, under surface, showing scars left by falling trichomes *b*; *s*, trichome from stem epidermis; *l*, epidermis of leaf, upper surface; *v*, trichome from stem; *x*, trichome from inner surface of calyx; *l*, leaves.

stalks may be found intact. In form they are ovate, lanceolate, or oblong-lanceolate, and measure 30 to 80 mm. in length by 15 to 25 mm. in width. They have either acute or acuminate apices; margins entire or acutely four to six-lobed, and bases oblique or inequilateral (*Fig. 3, l*). The veins stand out conspicuousl yon both the upper and under surfaces of the leaves, but are more prominent

on the under surfaces. They are lighter in color than the rest of the leaf, and running out from the midrib are prominent veins which terminate in the lobes. In color the leaves are green or yellow-green.

Surface views of both upper and under sides of the leaves show cells with relatively even and regular walls (*Fig. 3*, *F* and *t*, and *Fig. 4 J*). On the veins the epidermal cells are elongated and sometimes pointed, resembling prosenchyma in form (*Fig. 4*, *K*). The palisade

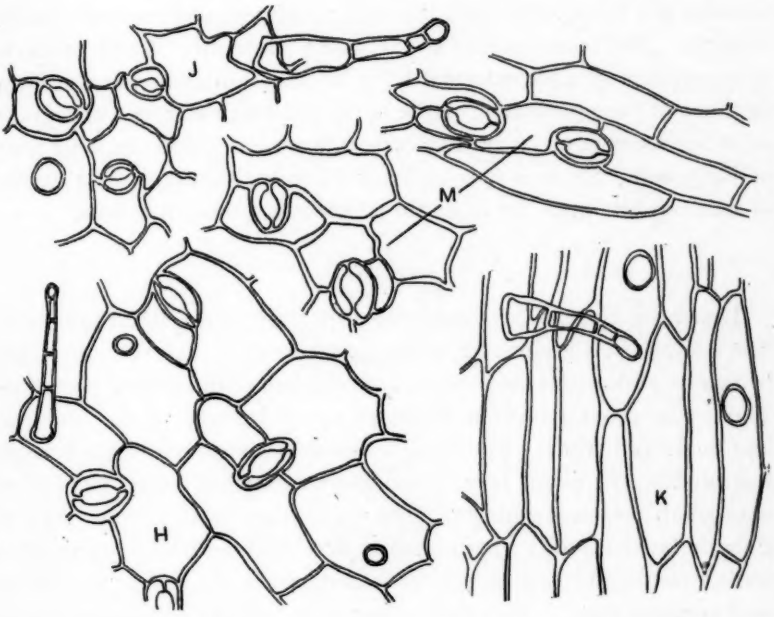


FIG. 4.—*H*, Epidermis of calyx, outer surface; *J*, epidermis of leaf, under surface; *K*, epidermis from midrib, under surface of leaf; *M*, epidermis from inner surface of calyx.

parenchyma consists of a single row of cells which are filled with protoplasm, and contain numerous chloroplasts. They are separated by numerous intercellular spaces. The spongy parenchyma is made up of several layers of irregular cells, between which are large intercellular spaces. These cells are also rich in chloroplasts and those adjacent to the palisade frequently contain crystals. Stomata similar in form and size occur on both the upper and under surfaces of the leaves, and both surfaces are pubescent.

CALYX.

Because of the firm texture of the calyces, they are less broken than the other parts of the plant. They are 10 to 25 mm. long, and are borne on peduncles 4 to 10 mm. in length. They are gamosepalous, bell-shaped, strongly ribbed, and surmounted by five nearly equal, short, blunt teeth. In surface view the epidermis resembles very closely that of the leaves (*Fig. 4 H*, and *M*). Stomata occur on both the inner and outer surfaces of the calyces, and both surfaces are hairy, although the outer surfaces soon become almost smooth. The inner as well as the outer epidermis of the calyx is accompanied by a hypodermal layer of cells similar in size and form to those of the epidermis; while between these two zones of regular cells lies a tissue of large and very thin-walled cells. In this zone of large cells, which is four or five cells in width, are many crystals of calcium oxalate. In color the calyx is a greenish-yellow.

FRUIT.

The calyx closely surrounds the fruit, but is not attached to it. The fruit is a two-locular pixis, and contains many small, light brown or yellowish seeds, which are attached to the central placentæ. The seeds, about 1 mm. in diameter, are flattened, nearly reniform, and finely reticulate. The seed consists of two very distinct coats surrounding a copious layer of endosperm, within which lies curled up a small colorless embryo. The outer seed coat is composed of a single layer of cells which have their radial and inner tangential walls striated and very much thickened, while the other tangential wall remains thin. This thin outer wall usually collapses and lies pressed close against the inner wall, thus giving the finely reticulate structure to the surface of the seed (*Fig. 5, C*). The inner seed coat is composed of a brownish, almost obliterated or partly resorbed, zone of cells.

The endosperm is made up of a zone of tissue, five or six cells in width. The cells are regular in outline, thin-walled (*Fig. 5, A*), and are closely packed with aleurone and oil. The aleurone grains (*Fig. 5, w*) are four to six-sided, and four to ten microns in diameter. Lying within the endosperm is the embryo, consisting of a hypocotyl, and two thin-cotyledons (*Fig. 5, L*). Both hypocotyl and cotyledons are made up of thin-walled cells very similar in size

and form (*Fig. 5*, *B* and *H*), excepting a small central portion of the hypocotyl, which shows the procambium strands already formed. The cells of the embryo also contain oil and aleurone, but the aleurone grains are smaller than those of the endosperm.

TRICHOMES.

Trichomes are found on the stems, both surfaces of the leaves and calyces, and are unicellular or multicellular, simple or branch-

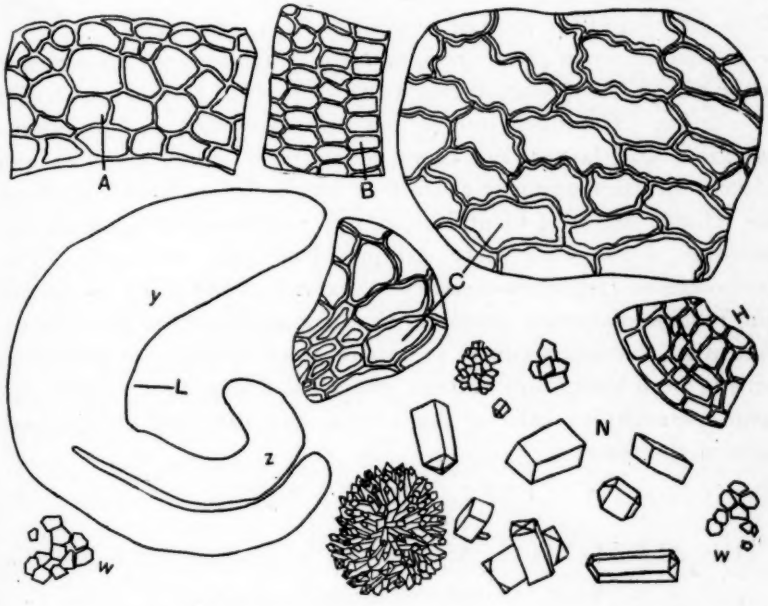


FIG. 5.—*L*, Embryo; *y*, hypocotyl; *z*, cotyledon; *A*, transverse section through the endosperm; *B*, portion of hypocotyl in longitudinal section; *H*, part of cotyledon; *C*, testa, surface view; *N*, crystals; *w*, aleurone.

ing. The unicellular trichomes are curved and non-glandular, but are covered with fine, spine-like projections (*Fig. 3*, *x*), while the multicellular trichomes are smooth and glandular. The simple multicellular trichomes are composed of a two to five-celled stalk, bearing a rounded unicellular glandular head (*Fig. 2*, *o* and *p*). The branching trichomes have a large, multicellular, four to eight-celled stalk bearing one or more branches; the main stalk, as well as the branches, terminates in a one-celled glandular head (*Fig. 3 s*).

CRYSTALS.

Crystals of calcium oxalate are abundant, and are found in all parts of the plant. They are in the form of pyramids, prisms and rosette-shaped aggregates (*Fig. 5, N*). The aggregate crystals, which often measure forty to sixty microns in diameter, occur for the most part in the cortex of the stems, and are relatively few in number. The prismatic and pyramidal forms, measuring four to fifty microns in diameter, frequently occur as twin crystals, and stand out prominently in any mounted preparation, whether it be made from material in the form of powder or from sections.

A comparison of *Hyoscyamus muticus* with the official *Hyoscyamus niger* brings out characteristics which cannot fail to distinguish the two drugs. The much lighter and yellowish color of *Hyoscyamus muticus;* the larger and more conspicuous stem remnants and calyces furnish diagnostic characters, which even to the unaided eye are reliable means of identification. A microscopical examination, however, shows even more striking diagnostic characters. The trichomes of *Hyoscyamus muticus* stand out as the most prominent and reliable diagnostic character that distinguishes the two species. But other characters almost as important are found in the epidermal cells of both leaves and calyces, the wood fibers, the crystals, the large parenchyma cells of the cortex, and the very conspicuous cells of the testa.

THE ALKALOIDAL ASSAY OF BELLADONNA ROOT.

By W. A. Pearson and J. G. Roberts.

Owing to the variation between our results and those of Dr. Carl Enoch, of Hamburg, Germany, as to the alkaloidal content of certain shipments of belladonna root, both our method and that of Dr. Enoch were critically examined and compared.

Dr. Enoch was kind enough to give us the complete details of his method, which is a modification of Keller's, and is as follows:

"The root, after being carefully dried, is powdered medium finely and 12 grammes are placed in a glass-stoppered Erlenmeyer flask of about 200 c.c. capacity, and exactly 90 grammes of ether and 30 grammes of chloroform are added. After inserting the glass stopper securely, allow the flask to stand ten minutes, so that the

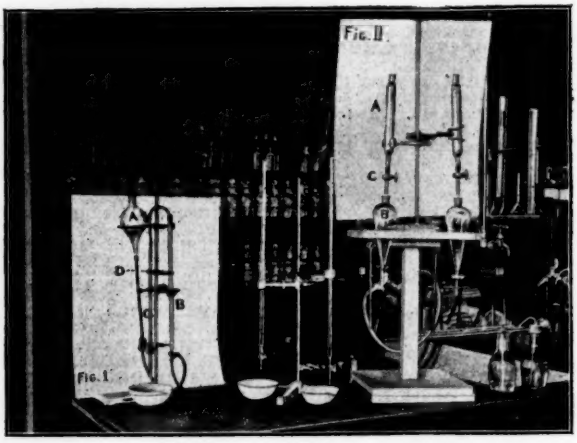
ether and chloroform can properly mix with the powdered root, and then add 10 grammes of 10 per cent. ammonia and shake the flask well at frequent intervals during an hour. The ammoniacal liquid will be entirely absorbed by the powdered root, while the alkaloids and resinous constituents pass into the ether-chloroform solution. Add 15 c.c. of distilled water and shake the flask again strongly for some time. By this addition of water, the powdered root separates entirely from the solution in the form of a paste, so that either through a paper or a pellet of cotton 100 grammes of the ether-chloroform solution can be transferred to a small flask. These 100 grammes now contain all that is soluble out of 10 grammes of the root. The small flask is immersed in boiling water until the ether and chloroform are evaporated, then a few cubic centimeters of ether are added, and this evaporated to be sure that no ammonia remains. The residue is then dried for about twenty minutes in a water oven to remove every trace of ether, chloroform or ammonia.

"In this flask we now have, aside from the total alkaloids, a small amount of very light yellow or white resins, which, however, do not interfere in any way with the following titrimetric determination of the alkaloids as the resins remain insoluble in the flask. To determine the alkaloid, put into the flask, while yet warm, 10 c.c. of absolute alcohol and heat gently until everything, with the exception of traces of resin, is dissolved. Add 50 c.c. of water and several drops of aqueous hæmatoxylin solution. The turbidity brought about by resin contained in the flask is of no consequence. However, I (Dr. Enoch) add a pretty large quantity of aqueous hæmatoxylin solution, which causes the color to change immediately to a deep red-violet shade. I then add tenth normal hydrochloric acid by drops. The color changes very soon into yellow; however, this is not yet the final point of the titration; for after close examination, you will find that each additional drop of acid still causes yellow streaks to appear in the fluid, this being a proof that the red color of the indicator has not all been changed into yellow. I continue to add tenth normal acid by drops until the last drop will no longer cause any clarification nor any formation of streaks. The titration must be carried until this point is reached. This point appears and may be determined so absolutely that I have obtained innumerable results which coincide.

"Multiply the number of cubic centimeters of tenth normal

hydrochloric acid used by 0·0287, and this by 10, and the result will be the per cent. of total mydriatic alkaloids."

For accurate measuring of the tenth normal acid, an apparatus shown in *Fig. 1* was devised. *A* is a small reservoir for water which is connected with a three-way stop-cock of a burette *B*, which is in turn connected at the top by means of a curved glass tube with a 5 c.c. pipette *C*. By turning the stop-cock in the burette, the pipette may be filled with tenth normal acid and accurately added to the flask containing the alkaloids in small drops. To facilitate accurate reading, a clothes-pin, *D*, carrying a strip of white paper,



FIGS. 1 and 2.—Alkaloidal Assay of Belladonna Root.

and on this half of a small round red label, is clamped at any desired point on the pipette and the readings very accurately made. The idea of this device was obtained from Dr. John Anderson, of the Marine Hospital Service. If properly made, the semi-circular red label will show a straight red line through the pipette or burette with which the lowest point of the meniscus can be made to coincide.

For our regular work we use the U.S.P. method with slight modifications, which simplifies the operation and increases the accuracy. The first deviation from the U.S.P. process is in the use of a Gordin combination maceration flask and percolator, which is shown in *Fig. 2, A*. Instead of macerating the belladonna root in an Erlen-

meyer flask and then transferring to a small percolator, as directed by the U.S.P., the ground drug is put in the percolators, together with the menstruum, and macerated for one hour, shaking at frequent intervals. When ready for percolation the percolator is placed so that the percolate will flow into separator *B*, *Fig. 2.*

The rate of flow of the percolate can be easily regulated with stop-cock *C*, which is a distinct advantage over the U.S.P. method, as the drug requires no packing.

The shaking out with acid solution and with chloroform is carried out as directed by the U.S.P.; but instead of combining the three chloroformic solutions and then evaporating, each one is evaporated separately as soon as it is drawn off. By so doing, all ammonia held by the chloroform solution is driven off. Due care is exercised at each step in the shaking-out process, to insure complete separation of the solutions. The last chloroformic solutions are filtered either through a pledget of cotton placed in the stem of the separatory funnel or through a filter into an evaporating dish.

For the titration a low form of evaporating dish is more convenient than a beaker, as the end reaction is more readily detected. In order to facilitate the titration, we dissolve the alkaloidal residue in 3 c.c. of alcohol, add the necessary amount of fiftieth-normal sulphuric acid volumetric solution and 10 drops of cochineal indicator, and then dilute with 75 c.c. of distilled water. Dissolving the alkaloidal residue in alcohol permits the use of a fiftieth-normal sulphuric acid for titrating, which is advantageous, as by using a weaker acid any possible error due to the volumetric solution adhering to the burette is diminished.

Because it is rather difficult to determine the end reaction when using cochineal indicator, on account of the absence of a distinct change, and as it is necessary for absolutely accurate results to have the same end reaction in the alkaloid determination as that obtained when standardizing the fiftieth-normal potassium hydrate, we have adopted a color comparison method.

A blank titration is made in a white porcelain evaporating dish, using the same amount of alcohol, fiftieth-normal sulphuric acid, cochineal and water, and titrating with approximately fiftieth-normal potassium hydrate to a definite color.

Then the alkaloid containing solution in a similar evaporating dish is titrated to the same tint as that obtained in the blank.

By dividing the number of cubic centimeters of fiftieth-normal sulphuric acid used by the number of cubic centimeters of approximately fiftieth-normal potassium hydrate required, a correction is obtained for the potassium hydrate solution. Multiply this correction by the number of cubic centimeters of potassium hydrate solution used in the alkaloidal tritration to find the number of cubic centimeters of fiftieth-normal potassium hydrate used.

Subtract this amount from the number of cubic centimeters of fiftieth-normal sulphuric acid used. Divide this number by 5 to get in terms of tenth-normal solutions, and multiply by 0·0287, and then by 10, and the result will be the percentage of mydriatic alkaloids present.

COMPARISON OF METHODS.

Dr. Enoch's method gives results that can be duplicated easily. It also has the great advantage that it may be quickly carried out. In our experience the results have always been higher than the same sample by the U.S.P. method; but Dr. Enoch says that there is more chance for loss in the U.S.P. method, which is true. The end point in his method seems to be carried too far. We have found that different indicators play an important part in the results obtained, and for that reason we have adopted the colorimetric titration as given above. It must be remembered that Dr. Enoch gives specific directions to thoroughly dry the root before beginning the assay. The U.S.P. makes no specific provision for this additional drying, and as belladonna root will usually lose about 10 per cent. in additional drying, this must be taken into consideration.

The above was sent to Dr. Enoch for correction and for further suggestions in regard to his method, and in reply the following comments were made by him:

(1) It is important in drying the drug previous to assay that the temperature is not raised above 80° C., as below that temperature there is no loss of alkaloid.

(2) For each titration, 1 to 3 c.c. of tenth-normal hydrochloric acid are used. The exact observation of the streaks is the only and best way to determine the end point in the titration.

(3) The end point in Dr. Enoch's method is not carried too far, but is absolutely correct, which you can see by making the same

test with a definite quantity of pure atropine, and besides, the following statements coincide with my results.

In all the literature of pharmacy and pharmacognosy you may read that the amount of alkaloids varies from 0·5 to 0·7 per cent. This is quite in accordance with my results. With the U.S.P. method you never have found more than 0·40 per cent. alkaloid in the highest analysis, even if you analyze the best belladonna root in existence. (? W. A. P. J. G. R.)

Different indicators always play an important part in the final results; therefore, I take hæmatoxylin as your Pharmacopœia formerly advised. If you use cochineal, it is necessary to previously test the tenth-normal hydrochloric acid against this indicator, but it is not so good in this case.

The further drying of the root before powdering is necessary; otherwise, you never compare results of material which have different percentages of moisture.

We are greatly indebted to Dr. Enoch for his co-operation in this work, as well as to several members of the firm we represent.

RESEARCH LABORATORY,
SMITH, KLINE & FRENCH COMPANY.

POSSIBILITY OF ERROR IN THE U.S.P. ASSAY PROCESS FOR OIL OF PEPPERMINT.

BY DR. GUNNAR HEIKEL.

Inasmuch as oil of peppermint is a solution of about 40 to 45 per cent. menthol in menthyl acetate and other liquid constituents of the oil, it is evident that after elimination of a certain quantity of the latter a separation of menthol crystals will occur.

When the oil is saponified, such an elimination has taken place. All menthyl esters have been transformed in alkali salts and a corresponding amount of menthol liberated. By washing the saponified oil with water, as prescribed in the U.S.P., the remaining liquid constituents may not be present in a sufficient quantity to keep the increased amount of menthol in solution, which consequently separates out in crystalline form in the wash-water.

In case this loss of menthol is overlooked and the total menthol in the remaining oil assayed according to the U.S.P., the percentage found may be much below the truth.

An oil actually containing 9·2 per cent. menthyl ester (as acetate) and 51·6 per cent. total menthol showed, when assayed according to the U.S.P., only 19·6 per cent. total menthol. Hence 32 per cent. had been washed out from the saponified oil. (A large quantity of menthol crystals were actually found in the wash-water.)

Such a separation of menthol does not, however, occur as a rule, it evidently being dependent upon the nature of the oil; but as it can happen, the author considers it safe to change the assay process in such a way that serious errors may be avoided.

The amount of menthyl esters can of course be assayed according to the U.S.P.; but instead of acetylizing the total menthol in the saponified product, the oil should first be acetylized, after which the saponification of the product will give the amount of total menthol present.

The reason for acetylizing the saponified oil is evidently to have all the menthol before saponification in form of menthyl acetate, whereas by the acetylization of the original oil the calculation of the menthol would be based upon the presumption that all the combined menthol is present in the form of acetate.

The U.S.P. finds, however, no objection against such a presumption in the first part of the assay process, and the author thinks it would be advisable to maintain the same also in the second part, as such a change of the process not only would eliminate the possibility of large errors, due to separation of menthol, but also considerably shorten the process.

CHEMICAL LABORATORY OF NORWICH
PHARMACAL COMPANY.

THE WORK OF THE AMERICAN MEDICAL ASSOCIATION, WITH SPECIAL REFERENCE TO THAT OF THE COUNCIL ON PHARMACY AND CHEMISTRY IN IMPROVING THE PRACTICE OF MEDICINE AND PHARMACY IN THE UNITED STATES.[1]

By C. S. N. Hallberg, Ph.G., M.D., Chicago.

RETROSPECTIVE.

When in the city of Philadelphia some forty years ago several pharmacists began exploiting the local physicians with some unusually elegant preparations, who could have dreamed that from this small beginning would evolve the modern manufactured pharmaceuticals.

These preparations were at first limited to a few elixirs, then included syrups and wines, and rapidly increased by the addition of dosage-forms until they finally comprised the entire gamut of therapeutic agents in every conceivable and inconceivable form. Their manufacture was originally confined to a few ambitious retail pharmacists, but was followed by some of the more enterprising old-time wholesale drug-houses and eventually by regularly established manufacturing chemists and even by some herb-collectors, such as the Shakers at Lebanon, N. Y. While educated pharmacists even at this early period regarded the exploitation of the physicians by these ready-made preparations as an encroachment on their prerogative and sometimes resented the idea that there was any necessity for them, there was no general opposition and they grew and multiplied.

THERAPEUTIC SACRIFICE.

It was often charged that some of these preparations could not be duplicated even in skilful hands from the purported formula, and that their medicinal strength was overstated so as to give rise to the oft repeated charge that their therapeutic value was often sacrificed for palatability and elegant appearance. The tendency toward these preparations was also largely promoted by the numerous specialties from France, where the "pharmacie elegance" had its inception and has always thrived and flourished.

These ready-made preparations were, however, not so objection-

[1] Read at the Philadelphia College of Pharmacy, April 21, 1908.

able, because they were, as a rule, fairly true to the alleged composition and were introduced under regular pharmaceutical titles which thus avoided mystery and largely disarmed criticism. One of the pioneer manufacturers affixed a label to his preparations containing a statement to the effect "that no proprietorship or exclusive right in its manufacture was claimed, only that the purest and best ingredients were used and that they were carefully and skilfully compounded."

EARLIER ADVANTAGES.

These preparations had thus the advantage of proclaiming in their titles their composition, which was of great convenience to the physician, and yet from their technical and often composite character such knowledge was not easily acquired by the laity and would have been still less so when latinized. They relied for their preference on being specified by the maker's name and, of course, as such were of great disadvantage to the pharmacist, who often was required to keep half a score of different brands of the same preparation on hand.

THE PIONEER SPECIALTY MANUFACTURER.

While a few proprietary preparations, such as "Iodo Bromide of Calcium Compound" and "Elixir Peruvian Bark and Protoxide of Iron" had appeared, it was not until about thirty years ago that a peripatetic preacher from North Carolina began in St. Louis to exploit the doctors with certain specialties which were in a category different from any former kind of medicines. He evidently appreciated that the medical practitioners at that time, especially in the great southwestern country, were not well prepared to write prescriptions, that qualified pharmacists were few and far between and furthermore that the character of the practice often required the doctor to carry medicine with him. So this genius, possibly with the aid of the editor of a certain medical journal which is the reputed sponsor for the products of this "chemists corporation," coined short euphonious and suggestive names for a number of preparations for which "brief" and interesting articles appeared.

THE JOURNAL COMBINATION.

These contributions to medical literature were originally from more or less prominent medical men of "the southwestern metrop-

olis," who appeared to have formed a syndicate for the promotion of clinical therapeutics, but eventually had to share their position with previously unknown "coming lights" of the profession, from such great centers of medical lore as Arkadelphia, Ark., Shreveport, La., and Coffeyville, Kan. As this kind of proprietary-medicine business grew because of the success made by this pioneer, medical journals sprang up at nearly every crossroads and with them developed a peculiar profession—the paid-for-article doctor. The members of this profession were chiefly distinguished by the characteristic that their names were unknown to medical literature until suddenly they burst in all their own effulgent glory in some communication to the "Medical Gold Brick," telling the credulous and unsuspecting doctor how to treat his patient by doping him with "Dopine," by sweating him with "Sweatine," by nerving him with "Nervine," and don't forget it—eliminate his uric acid with "Uricadine." He had solved the great problem. He had reduced the practice of medicine to a science—to an exact science. No groping in the dark—no experimentation; no chance of failure—everything cock-sure. If not satisfied, money back.

Pardon this last lapsus. This never appears in the doctor's learned communication, but in the advertising pages where the especial therapeutic, secernent and synergistic actions of the various wonderful discoveries are proclaimed.

Many of these prolific contributors have been gathered to their fathers, but they are by no means extinct and they exist in places where they would be least expected,—even in medical colleges. It is some satisfaction to know that their fame will not be lost; that they have all been carefully listed and tabulated and sometime in the near future posterity will know, how numerous were the species of Iscariots who sold their birthrights in the most noble profession for a mess of pottage.

POSING AS AUTHORITY.

The business of publishing a medical journal by a doctor, or a coterie of doctors, for the express purpose of "working" their colleagues with a line of proprietary medicines, became so common that one or more such journals were started often in places devoid of the least reason for the existence of such journals, except the editor's ambition and desire to make some money off his readers,

in the guise of a clinical authority. These journals, though having a nominal subscription price, were sent to selected lists of physicians in tributary territory so long as the results were satisfactory, and since they were entered in the post-offices as second-class matter at one cent per pound, they formed the cheapest and most effective kind of advertising. The doctor-proprietor usually hid his identity under aliases representing anonymous chemical companies; one such journal published in Connecticut masquerading as some different company for each of its specialties.

ANONYMOUS COMPANIES.

This "Wily" concern issues a quarterly devoted to the "Uric Acid Diathesis" and its control by a very ordinary effervescent salt sold at an extortionate price, which from being for the exclusive use of physicians has recently been distributed to the laity and the medical testimonials used to extol the wonderful virtues of the salt to the public. These journals are certainly not entitled to the reduced postage of second-class rates since the publishers are also owners of the medicines, which are constantly being extolled, not only in the advertising pages, but in "clinical notes" and "answers to correspondents" and sometimes in leading articles accompanied with the portraits of the distinguished author.

SWINDLING THE POST OFFICE DEPARTMENT.

Since one of these journals pays $6,000 a year postage instead of $48,000 as it should pay at the regular rates, investigation by the Post Office department would seem desirable. While some of these journals have retired during the past two years and others have consolidated, specimens of their kind may be found in the following places: Burlington, Vt.; Danbury, Conn.; New York, Philadelphia, Chicago, St. Louis, North Carolina, Wisconsin and Texas.

SOURCE OF MEDICAL INFORMATION.

Indulgence is asked for this extensive reference to medical journalism, but this subject is indissolubly connected with the discussion of the Proprietary Medicine Question. It brought the issue to the American Medical Association and led to the organization of the Council on Pharmacy and Chemistry as a consequence.

As pharmacists we may easily imagine the state of knowledge of medicines by a considerable portion, probably one-half of the practising physicians of this country, when the character of the literature is considered. Some of these medical publishers, always optimistic in the use of drugs, may also have been altruistic—actuated by motives other than purely mercenary and sordid—in extolling their special manufactures. But as manufacturers they were helpless, often down-right ignorant as to the chemical or pharmaceutic character of their preparations or their constituents. Relying mostly on some manufacturing pharmacist for their preparations, they were often at the mercy of those who, becoming aware of their lack of knowledge, imposed on them to the disadvantage of the medicines. In several well-known specialties from such proprietors the composition has been changed without change in the formula, until attention thereto was directed. Important ingredients have been omitted and others substituted with perfect abandon, without changing the formula or the literature, and upon the correctness of the latter being challenged, such change or substitution has been frankly, sometimes naïvely, admitted as being of no special importance or consequence. One of these medicine-manufacturing publishers, who is exploiting doctors with a line of quack specialties and with unloading on the credulous readers of his journal, self-perpetuating, gold-bearing bonds of the company, and who poses as a great authority on alkaloids, is continuously waging relentless war on the uncertain, instable and unsafe galenicals, and insists that every doctor should employ active principles, and of course these only in the form of this company's tablets.

REAL SUBSTITUTION.

Among these are found tablets of digitalin as a perfect substitute for digitalis; cicutine for conium and aconitine for aconite, which, at least until recently, was not the official alkaloid, the only dependable substitute for this drug. Tablets of veratrin are extolled to the doctors as far more certain than veratrum, the tincture of which is the cardiac sheet-anchor to the physicians, especially in the South—this great alkaloidal exponent being apparently perfectly oblivious to the fact that veratrin is not the active principle of veratrum viride, but an indefinite mixture of principles from the cevadilla seed, whose only therapeutic use is an irritant externally, applied as an ointment or oleate, and popularly used as a parasiticide.

These few examples indicate the very serious condition caused by these doctor-publishers and suggests that the attention of the medical profession be directed to this perversion of the literature and also that the privilege of second class mail rates, through which the Post-Office department is robbed of many thousands of dollars annually, be denied these publications.

Without this privilege these journals could not exist.

STATE ASSOCIATION JOURNALS.

There are now nearly a score of journals published by State medical societies, and the number is steadily increasing. It is hoped that in the near future every State medical society will have its own journal, or that the smaller societies jointly publish an official organ. This will drive out the undesirable class of journals referred to, and since these State journals are responsive to their State medical societies, it will be comparatively easy to keep their pages clean and accept advertisements for medicinal articles only that have been approved by the Council.

To maintain these journals is, however, difficult, since limited in advertisements they often cannot secure sufficient acceptable advertising to pay expense of publication, and since the journals must not be too much of a drain on the revenues derived from dues, their continuance is often a difficult problem for solution. This embarassing situation might be relieved if local pharmacists, or possibly societies, could extend some patronage in this direction.

MEDICAL CURRICULA.

Another agency which must be aligned for co-operation in this work is the instruction in the fundamental branches in the medical schools. This will require not only that the courses be extended to cover more practical work under personal instruction, but that more time be devoted and that the construction of prescriptions be done in the last year of the course instead of the first, as has been the case. The methods of the dispensaries and hospitals and the training of internes must also be radically changed. As now conducted in most institutions it is simply a drilling into the habit of designating numerical mixtures, often without intelligent discrimination; a sort of picking the winner and trusting to chance.

THE COUNCIL ON PHARMACY AND CHEMISTRY.

The Council on Pharmacy and Chemistry has now been actively at work a little over three years, although considerable preliminary work was done principally through the Section on Pharmacology and Therapeutics of the American Medical Association.

Loading up the medical journals with advertisements for all kinds of quack nostrums irritated the better informed physicians and caused them to protest, which found vent in the Section. Year after year the subject of nostrums was discussed in its various phases and resolutions adopted by the Section, until finally the trustees of the American Medical Association arranged for the formation of the Council, and began to prepare to throw out all advertising not acceptable. While the work does not make a formidable showing it nevertheless has done wonders in these few years and has entirely changed the attitude of the medical profession to proprietary medicine. The physicians, as far as their societies and authorities are concerned, are committed to the reform of the Materia Medica.

The first public utterance after publication of the announcement containing the rules, etc., was the report of the analyses of the acetanilide mixtures. In this was nothing new; only what every pharmacist knew.

THE FIRST REVELATION.

But it was startling information to the physicians. Having occasion to cross the continent to attend the meeting of the A.M.A. in Portland, Ore., shortly after this article had appeared in the *Journal* and thus meeting a great many medical men, the expose proving these wonderful synthetic coal-tar derivatives to be nothing but cheap acetanilide mixtures with alkalies, was the general theme of conversation and was actually startling in its effect on the doctors. They felt that they were the victims of misplaced confidence, that they had been swindled, and that possibly they had been the innocent cause of their patients' sufferings.

STARTLING CONDITION.

From this time on many similar articles were examined and proved to be, instead of definite compounds, produced by intricate reaction or synthesized product possessing new and often marvelous therapeutic properties, simple mixtures of well-known substances without any special value.

Similarly many articles were reported to be materially different from the alleged formula, the maker sometimes frankly admitting that the formula had been changed for the better, while others refused to acknowledge the error, simply because of ignorance as to the difference in the action of the constituents. Others as laymen not having the remotest idea—pharmaceutical, medical or ethical—simply refused to explain, believing that the formula was their property with which they could "do as they pleased."

APPALLING MENDACITY.

The false therapeutic claims and dishonest methods of exploitation also came in for their share of attention. Thus the fat-free cod liver preparations—the petroleum emulsions, the hyoscine-morphine-cactin combination, etc., were dissected and their shallow pretense of therapeutic virtues exposed. The startling disclosures of the methods employed to sophisticate scientific government reports in order to boost a certain preparation, which, after having served as an ordinary "Frauen Medizin" in Germany, had been brought over to this country to be pushed on to the medical profession as an exclusive product, proved a shock to many physicians, especially since it was discovered that the wonderful preparation was actually inferior to Blaud's pill.

THE WORK OF THE COUNCIL.

Some 300 articles have been accepted by the Council and admitted to the book, "New and Non-Official Remedies." Many more have been examined, but only such are reported as have been found to be entirely false in composition or for which absolutely unwarranted statement concerning therapeutic properties have been made. Former efforts for reformation in this direction have been made sporadically only to fail because of some criticism appearing, which either could not be proved beyond peradventure or could not be completely substantiated when challenged. The work of the Council has been successful largely because no statement concerning any article has ever been made that could not stand the most rigid scrutiny.

Nearly one-half the articles accepted are foreign, mostly German, manufacture, the remainder being fairly representative of the principal American houses.

NO RECOMMENDATION.

It should be remembered that acceptance of these articles by the Council and their publication in the New and Non-Official Remedies, and monthly in the *Journal of the American Medical Association*, does not carry with it any recommendation; simply that they conform to the rules adopted by the Council to govern the selection of such proprietary articles as physicians may be safe in using and therefore eligible to advertising in medical journals.

In brief, the articles must be true to the composition alleged and no unwarranted therapeutic claims be made for them. The Council would not assume, even were it practicable, to pass judgment on their therapeutic value or clinical efficiency. This is the physician's prerogative with which he can allow no interference.

All he wants to know is that the maker states the truth concerning his products.

FORMER EFFORTS.

At the appearance of every revised edition of the U.S.P., as well as the N.F., there have been more or less efforts directed toward securing physicians' attention to these works, that they may accept the pharmaceutical preparations therein contained and give them preference over the proprietary articles. These efforts have been largely futile because there was no general sentiment among the physicians suggesting its desirability and no awakening to the turpidity of the proprietary medicines.

Now it is different.

With the entire medical profession aware of its perilous position, should the exploitation by the proprietary interests be permitted to continue, with the medical societies and their journals alive to the issue, with the recognition by their authorities that the official preparations to which they have themselves contributed, are equal if not superior to proprietary articles, there is an entirely different feeling, and here is the opportunity for the pharmacist.

JOINT MEETINGS, ETC.

The effects are already apparent. In the larger cities where the movement has been longest in progress there is already a marked falling off in the prescription of proprietaries and a correspondi ng

increase in the preparations of the U.S.P. and the N. F. Meetings are being held jointly with the physicians for the discussion of this and related questions. This of itself cannot fail to be of mutual advantage, since bringing the pharmacist and physician together will result in better understanding and appreciation of each. In Chicago five such meetings have been held during the past two months, in which pharmacists have read papers, participated in the discussions and sometime, exhibited preparations of the U.S.P and N.F. Such a thing was unheard of only a few years ago and not thought possible, until the branches were organized of the American Pharmaceutical Association.

The physicians seem to show the right spirit, and while not always mincing words in speaking of the unprofessional practices of some druggists, such as counter prescribing, substituting and pushing patent medicines, as a rule will patiently "take their medicine" when told of their shortcomings, such as self-dispensing, prescribing proprietaries and forcing multiplication of identical articles. The pharmacists in smaller places may secure at nominal cost the literature prepared by A.M.A. for distribution to physicians and by showing their own make of the official preparation, do equally as well as in the cities. See

"New and Non-Official Remedies."

"A Propaganda for Reform in Proprietary Medicines."

The greatest difficulty lies in having the physicians realize that the use of short, euphonious names for medicines is simply inviting lay self-medication. They should constantly be impressed with the danger of using such names as are designed for patent medicines. No physician should patronize any medicinal article which has not a scientific pharmaceutic, preferably Latin, title.

The public is now using scores of these proprietaries which they would not have become acquainted with if they had Latin titles. Liquor ferri peptonati cum mangano would not be sold on bargain counters, nor would they now be calling for aspirin if it had been prescribed as acidum aceto-salicylicum. The excuse that the physicians cannot learn or remember these names is apocryphal. How can they remember the names of the bones of the body or the names of some new diseases such as trypanosomiases? The official titles must be insisted on and no pharmacist should encourage their abbreviation or simplification. All persons engaged in any scientific

pursuit must learn the technical terms that constitute its language.

We should also observe strict compliance with the pharmaceutical nomenclature, *i. e.*, that when a preparation can be classified with any official class it should bear the class-name in the title. Dosage-forms are being pushed with a simple name when they should be designated pilulae, capsulae, etc.

Matters of this kind are suitable subjects for discussions at these joint meetings, which may result in agreements. Thus the Chicago joint meetings have discussed the prescription and several have already adopted this declaration on the subject.

DECLARATION ON THE PRESCRIPTION.

First. The prescription is an utterance of the prescriber who alone should direct and control its employment. It should, whenever practicable, carry the name of the patient, the age in years, if a minor, and the date when written.

Second. The pharmacist who prepares the medicine should retain the prescription as reference for his services and as record for a certain limited period, not less than five years, for the protection of the prescriber, himself and the patient.

Third. The medicine prescribed should be supplied not more than once on the same prescription: (1) If ordered by the prescriber "not to be repeated" (N. rep.); (2) if containing medicinal substances commonly called narcotic or habit-forming drugs; (3) if called for by some person known not to be the original holder.

Fourth. Copy of the prescription may be furnished and should be written on an especial blank, containing a declaration that it is a copy of a prescription which has been delivered to the original holder and is not to be refilled except on order of the prescriber. The copy is made without recourse to possible error.

Since many physicians have quit writing prescriptions because they cannot control them, this declaration has been formulated by a joint committee of the Chicago Medical Society and the Chicago Branch of the American Pharmaceutical Association.

It has already been adopted by one-half of the branch medical societies in Chicago, and it is believed, when generally observed by pharmacists, it will be instrumental in causing physicians to resume writing prescriptions more generally.

There is nothing new or radical in the requirements—nothing but that every reputable pharmacist will agree to. A definite expression like this is deemed necessary that all concerned may understand their position to the prescription and to each other, and to give the pharmacists who so desire, the authority and the opportunity to align with the profession. Similarly many subjects may be considered at these joint meetings and eventually be formulated in declarations to guide the relations of the pharmacist and the physician and, it is hoped also, the public.

COMING INTO HIS OWN.

With the fulfilment of such a programme the pharmacist will soon come into his own. For years our institutions, like this old Philadelphia College of Pharmacy, with a record of nigh on to a century, have been sending out thousands of youths—trained in the preparations of pharmaceuticals, qualified for the compounding of medicines—to do what? To practise pharmacy—hardly. The encroachment of the proprietary medicine men left but little of the practice. Now it is going to be different.

With the medical profession earnestly, actively interested in this movement, with the impetus given to our great works—the U.S.P. and the N.F.—by the Federal Act, with the branches of the American Pharmaceutical Association aggressively at work in the principal cities, the reformation is now progressing.

THE REFORMATION.

And it is high time for the alignment of the two professions of medicine and pharmacy. The public has lost faith in medicine and has been doing without either physician or pharmacist. The layman has discovered that he can buy patent medicines without paying a physician a fee for recommending them. Many of them have tried all the principal proprietary pharmaceuticals, even synthetics. From these they have fallen victims to the regular patent medicine literature of the press and sometimes the symptom-questions-list of the advertising quack.

They have thus by natural evolution or selection graduated from Osteopathy to Hypnotism, Dowieism, Eddyism, and through every imaginable fad, fake or faith cure.

The public has run the gamut and is ready for a change.

There is an inherent feeling or instinct in the average human being that chemical therapeutics is after all the safest and most certain to remedy ills or to cure disease.

It is believed that now is the psychologic moment.

THE RESTORATION.

Let us then join the medical profession in placing the materia medica on a safe basis and perfect our great medicinal standards for the promotion of our professions and the restoration of public confidence in our practices.

The pharmacist, always accessible and in contact with the public, should be the medium through which this confidence may be restored into humanity's greatest friend—the physician—let him figuratively give the public the glad hand.

Let pharmacy assume its traditional position as a handmaiden to medicine as symbolized in the historical figure of virile old Esculapius, ever ready to combat disease with the aid of the poison pressed from the serpent's fangs by Hygeia—the goddess of Health—the symbol of pharmacy.

NOTE ON THE DISINTEGRATION OF TABLETS.[1]

By George M. Beringer, Jr.

Some time ago the writer had occasion to prepare tablets containing one grain of arecoline hydrobromide for veterinary hypodermatic use. To each of these, two grains of sodium chloride was added. This addition served the purpose of both diluent and lubricant, and the tablets were so furnished on several occasions. It became necessary, however, to prepare them on a very damp day and 10 per cent. of powdered boric acid was added to overcome a slight adhesion to the die and punches of the tablet machine. The veterinarian, for whom they were prepared, volunteered the information that these were better than usual, and went to pieces almost immediately on being dropped into water. Since the arecoline and the salt are both very soluble in water, the increased rapidity of

[1] Presented at the thirty-eighth annual meeting of the New Jersey Pharmaceutical Association at Atlantic City, N. J., June 3, 1908.

disintegration could only be attributed to the boric acid, although that is, by comparison, almost insoluble.

At another time, tablets of ammonium chloride were being prepared. While this salt usually requires no lubricant, the weather was exceedingly damp, and it became necessary to add a small percentage of talcum to overcome sticking. A test of these tablets made on the same machine, without readjustment, before and after adding the talcum, showed the latter to be quicker in breaking down.

In the above cases the additions of material have been of a more or less insoluble substance to a soluble substance forming the body of the tablet, but the reverse gives the same result. A veterinary tablet of arsenic trioxide one grain with cane sugar one grain, disintegrates, so rapidly when dropped into warm water that observers have declared it to be made of an effervescent base. A tablet containing two grains of cane sugar only, dissolves but slowly. Quinine sulphate with 25 per cent. cane sugar gives the same result, although neither quinine sulphate nor sugar alone disintegrates so rapidly. Tablets of the basic bismuth salts made with the addition of 20 per cent. of cane sugar fairly "fly to pieces" when dropped into warm water. This also is true of tablets each containing

Bismuth subnitrate	1 grain.
Cerium oxalate	½ "
Milk sugar	½ "

Although milk sugar is distinctly less soluble than the cane sugar used in the plain bismuth tablets. Perhaps the most striking example of rapid disintegration, where least expected, is in a tablet containing

Reduced iron	2 grains.
Quinine sulphate	1 grain.
Arsenic trioxide	$\frac{1}{50}$ "

when granulated with syrup, yet none of the ingredients is noted for ready solubility in water.

The cases cited and numerous others lead to the inference that a more or less fixed rule applies in all cases where a tablet is composed of two or more ingredients; namely, that, other things being equal, *the rapidity of disintegration of a tablet varies directly with the difference in solubility of the ingredients.* The reason for this is obvious. The more soluble particles being first attacked by the

solvent, a sort of "honey-combing" effect is produced, and the cohesion of the less soluble portions being destroyed as well as more surface exposed to the solvent, the tablet falls rapidly to pieces. While some of the facts in connection with this have been observed, the rule does not appear to have been specifically stated, and hence it is deemed worthy of recording.

BOOK REVIEWS.

PRACTICAL PHARMACY. A Description of the Machinery, Appliances and Methods Employed in the Preparation of Galenicals, with an Account of Pharmaceutical Testing and the Assay of Crude and Manufactured Drugs, together with a Short Treatise on the Art of Dispensing. By E. W. Lucas, F.I.C., F.C.S. Second Edition. 423 pages, cloth, $5. Publishers, London: J. & A. Churchill. Philadelphia: American Agents, P. Blakiston's Son & Co.

The second edition of this English work on pharmacy is before us, enlarged and largely rewritten. It is a compact volume of 423 pages, neatly printed and bound, and the descriptive text is helped by 224 illustrations, many of which are electrotypes of special apparatus manufactured in England, Germany and the United States.

The subject matter is divided into five distinct parts under the titles: I—General Processes and Description of Apparatus; II—Pharmacopœial Preparations; III—Assaying and Testing; IV—Dispensing; V—Tests and Tables. These are subdivided into fifty-nine chapters, each treating of a special subject or class of pharmaceutical preparations.

In studying this volume, the reader is impressed with the fact that the author's view of pharmacy, as exhibited herein, is mainly from the laboratory, and the preparation and testing of drugs has received the major consideration, while the dual duty of the apothecary, the "Art of Dispensing," has received rather scant consideration in Part IV, devoted to Dispensing, and covering only sixty-eight pages. Yet, throughout the other parts of the book, the observant pharmacist will find numerous hints that will be of great assistance at the dispensing counter. Not the least of these is the extensive list of synonyms included with the tables.

Each chapter treats of its special subject in the most concise manner, and these are in the main really commentaries on the subject as treated in the British Pharmacopœia. In some respects these chapters are models of condensed treatment, but occasionally their conciseness is rather disappointing. The entire subject of Collodions is treated in Chapter XXI, just thirteen lines in length. Plasters are considered in one and one-half pages; and compressed tablets a subject that to-day necessarily occupies a large portion of the attention of the pharmaceutical manufacturers, is briefly considered in five pages.

The chapters on Specific Gravity and Percolation are illustrations of concise treatment of pharmaceutical processes, and another subject well treated in the limited space is Ethylic Alcohol, in Chapter XI, where convenient rules for the various alcohol conversions are given. In the table of strength of alcohol ordered in the different pharmacopœias on page 110, occurs one of the few errors noted in the volume. Here the author continues to quote the specifications of the U.S.P., 1890, for alcohol instead of those of the U.S.P., Eighth Revision.

Despite the terseness of the various monographs, the amount of information contained is remarkable. The author has succeeded in incorporating many original determinations and observations of a thoroughly practical character, and the numerous criticisms and suggestions are certainly very valuable. The practical and critical treatment of the classes of galenicals throughout the volume is illustrated by the exemplary chapters on ointments, tinctures and extracts. The chapter on tinctures, while condensed into eleven pages, contains, among other excellent features, the following that are especially praiseworthy: tables giving the average specific gravity, percentage of extractive and alcoholic content of each of the British Pharmacopœial tinctures; also, assay processes for those that can be standardized, accompanied by criticisms and suggestions for improvements; also, dosage tables for the more potent tinctures, and a valuable note on the "Deposits in Tinctures." In considering the extracts, the manipulation necessary to extract each drug is explained and the yield by the official process is stated. In the liquid extracts the specific gravity of each finished product, the percentage of extractive and the alcohol content by volume are given.

Part III, devoted to "Assaying and Testing," is a guide to the important methods of estimating the value of crude drugs, oils and preparations, well worth the careful study of the manufacturing pharmacist, who, under existing conditions, must devote more attention to this subject. Here, again, the author's experience enables him to offer criticisms and suggestions that add greatly to the value of this section.

Numerous original tabulations appear throughout the book, and in addition the volume is replete with reference tables that fill almost all of the needs of the pharmacist.

While this book is essentially an English work and written as a commentary on British pharmacy, and the British Pharmacopœia naturally receives almost exclusive consideration, it is nevertheless a work of distinct merit, adding to the general knowledge of pharmacy, and many of the comments and suggestions are alike applicable to the practice of pharmacy on this side of the Atlantic. It should find a place in the library of every manufacturing pharmacist and apothecary, and will well repay a careful perusal.

GEORGE M. BERINGER.

PRÉCIS DES OPÉRATIONS PHARMACEUTIQUES, a l'usage du Pharmacien et de l'Élève en Pharmacie. Par A. Astruc Docteur ès Sciences, Professeur Agrégé a l'École Supérieure de Pharmacie de Montpellier. Préface de M. le Professeur F. Jadin. Montpellier: Coulet et Fils, publishers.

This compact 8vo volume of 380 and viii pages constitutes, as its name indicates, a descriptive epitome or handbook of pharmaceutical operations.

As is claimed by the author, it is essentially practical and is designed to elucidate and describe the several pharmaceutical operations that are of frequent occurrence in the well-appointed laboratory.

The book is divided into two parts. The first part consists of a short preliminary chapter and a somewhat longer chapter, entitled "General Pharmaceutical Operations," relating principally to the weighing and measuring of medicinal substances.

The second part is descriptive of "Pharmaceutical Operations Proper," and contains, in addition to an interesting definition of what the author understands by the term, chapters on mechanical operations, physical operations, chemical operations and sterilization.

This part of the book is followed by an addendum containing an enumeration of the various forms of medicaments, an alphabetical table of the illustrations, which number upwards of two hundred, and an index.

The author defines pharmacy as the total of the knowledge, technical and scientific, that is essential for the preparation of medicaments.

Pharmacy, he asserts, is at the same time an art and a science. It is an art because of the practical and laborious apprenticeship that is required, and it is a science because its teachings and theories are derived from chemistry, natural history and physics.

Probation and study are the paths that must be followed by the student who is desirous of perfecting himself in this branch of the healing art.

Professor Jadin highly commends the book, in the introduction that serves as a preface, and very properly points out that while this little book may well be the constant companion of the apprentice or student, many pharmacists might also read it with profit.

Practically all of the several pharmaceutical operations, such as weighing, measuring, sifting, levigation, decantation, expression, straining, centrifugation, filtration, clarification, the various processes used for effecting comminution, emulsification, refrigeration, desiccation, evaporation, fusion, sublimation, distillation and crystallization are all enumerated and are described in a concise but readable manner.

Upwards of forty pages are devoted to a description of the several methods that may be used for sterilizing pharmaceutical preparations and utensils. Antisepsis and asepsis are thoroughly defined, their limitations pointed out and the general reasons for preferring asepsis are well illustrated.

The simple but efficient language that is used by the author throughout the book amply demonstrates his ability as a teacher. The book is to be recommended to teachers of pharmacy as an illustration of a concise method of presenting information regarding generally well-known processes. To students and pharmacists, on the other hand, the book will prove interesting as a review, not alone of pharmaceutical processes, but also of scholarly, concise French.

M. I. WILBERT.

THE CHICAGO MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

The fifty-ninth annual session of the American Medical Association, held in Chicago, June 2–5, 1908, was by far the largest, and in many respects the most important, gathering of physicians that has ever taken place in this country.

The total registration of members, 6,446, while large, does not fully represent the actual attendance, as many of the members from nearby cities and towns did not take the time to register and a very large number of physicians, not members of the Association, were present as guests.

The meetings of the several sections were uniformly well attended, and the interest that was manifested on all sides indicated that the communications that were presented, were considered to be of a relatively high order of merit.

There are many reasons why the 1908 meeting of the American Medical Association will be considered as having been a phenomenal one, and one that will do much to mark real progress in matters medical.

Meetings of this kind are usually dominated by some one theme or subject, and to this the Chicago meeting was no exception. The problems most frequently discussed all appeared to bear directly or indirectly on the need for educating the public in matters medical. This need for properly instructing the people in matters relating to the public health was referred to at some length by the President in his address, was the fundamental basis of discussion in the oration on medicine, was freely discussed in the House of Delegates, and was frequently suggested in papers that were presented to one or the other of the many sections. Everywhere it was evident that the present-day medical man believes that physicians should be recognized as the guardians of the public health, and that they should do all in their power to promote the development of hygiene and sanitation for the purpose of preventing disease. To one interested in the development of the physical welfare of the people, the Chicago meeting of the American Medical Association was indeed an inspiration, and the ultimate effects of the meeting will certainly be far-reaching.

As in former years, pharmacy and matters pharmaceutical were

given considerable attention. President Bryant, in his farewell address to the House of Delegates, frankly discussed a number of the abuses that have been shown to exist. He warmly commended the work so far accomplished by the Council on Pharmacy and Chemistry, and condemned, in unmistakable terms, the attempts that have been made to throw discredit on the work or its object.

Dr. J. N. McCormack, in his report as Chairman of the Committee on Organization, referred at some length to the meeting of the American Pharmaceutical Association, in New York, last September, and to the opposition that had been aroused by his address to that body. He expressed the belief that all the better class of pharmacists were willing and anxious to conduct their business with an honest regard for the public welfare, and that these men should receive the co-operation and support of medical practitioners. He also expressed the belief that the creation of a strong conference committee, representing the American Medical Association and the American Pharmaceutical Association, could do much to eliminate misunderstandings and to nullify the repeated misstatements that are now being made by interested parties.

At a subsequent meeting of the House of Delegates, Dr. Lewis S. McMurtry offered the following resolution:

"*Resolved*, that in accordance with the recommendation of the Committee on Organization, the President is requested to appoint a committee of three members to confer with a like committee to be appointed by the American Pharmaceutical Association, in regard to drug reforms, a return to scientific prescription writing and other matters of material interest to these two associations."

On motion of Dr. Philip Mills Jones, of California, this resolution was adopted and the American Medical Association placed on record as being willing and anxious to foster truth and honesty in matters relating to pharmacy.

The sessions of the Section on Pharmacology and Therapeutics were of more than ordinary interest to members of the pharmaceutical profession. In common with all of the other sections, the meetings were unusually well attended and the readers of papers, generally, had the satisfaction of having their contributions liberally discussed.

The address of the Chairman was an illuminating discourse on

simplicity in prescribing, and included a strong plea for discouraging the use of all fixed formulas in the treatment of disease.

Prof. Jos. P. Remington, as Chairman of the Delegation from the American Pharmaceutical Association, presented the greetings of that organization and briefly outlined the present situation of pharmacy in its relation to medicine.

Prof. C. S. N. Hallberg, the Secretary of the Section, presented an unusually interesting report, in which he reviewed the present-day status of so-called "patent medicines." He also directed attention to the all too flagrant abuses of the letter as well as the spirit of the laws regulating second-class postal rates, and advised that the post office authorities be requested to rescind these privileges in the case of publications carrying fraudulent medical advertisements.

The liberal discussion that was evoked by the several communications bearing on the Pharmacopœia and the National Formulary was particularly interesting in that it evidenced a marked reawakening on the part of physicians in matters relating to our National standards.

A paper read by Dr. O. T. Osborne on "The Sufficiency of the Official Drugs and Preparations" precipitated an unusually lively discussion that evidenced the need for differentiating, somewhat sharply, between pharmacists and drug sellers.

The concluding meeting of the Section was devoted entirely to a Symposium on the Pharmacopœia and the National Formulary. Dr. Torald Sollman, Dr. James M. Anders, Dr. H. W. Wiley, Dr. C. F. Wahrer and Prof. H. Vin Arny had prepared papers, and these were read either by the authors themselves or their representatives.

The discussion on these several papers was opened by Prof. Joseph P. Remington, the Chairman of the Committee on Revision of the U.S.P., and was continued by a number of the members present.

Dr. Reid Hunt, as Chairman of the Committee of the American Medical Association, on the Revision of the Pharmacopœia, announced that this committee had been organized and that the members would be in position to proceed with routine work in the very near future.

Throughout the discussion it was evident that physicians were intensely interested in matters relating to the Pharmacopœia, and that in the near future they will be much better able to judge of pharmaceutical products than ever before.

The pharmacologic action and the physiologic testing of drugs were freely discussed in papers on isopral, strophanthus, thyroid preparations, and, more particularly, in a paper on "Physiologic Assay of Some Commonly Used Drugs," by Drs. C. W. Edwards and George B. Roth, of Ann Arbor.

One meeting of the Section on Pharmacology and Therapeutics was devoted to a joint session with the Section on Hygiene and Sanitary Science, which included a symposium on the Prophylaxis of Communicable Diseases.

In the Exhibition Hall the chief attraction, to pharmacists, was the exhibition of U.S.P. and N.F. preparations by the Chicago branch of the American Pharmaceutical Association. This exhibit was advantageously placed with the scientific exhibits and attracted considerable attention. It included upwards of 150 different preparations, so that in variety and number it eclipsed the exhibit made by the Philadelphia Branch, at Atlantic City, last year.

Members of the Chicago Branch were in constant attendance to demonstrate the elegance of the preparations exhibited, to extol their virtues, and, incidentally, to distribute an interesting pamphlet of some thirty-two pages, entitled, "The Pharmacopœia and the National Formulary." This pamphlet, in addition to the enumeration of the composition and the uses of the preparations exhibited, contains much interesting information and is well worth careful perusal on the part of pharmacists as well as physicians.

Altogether, it is not unreasonable to prophesy that the fifty-ninth annual session of the American Medical Association will mark for pharmacy, as it surely has marked for medicine, a very decided step forward. It would indeed be preposterous to suppose that the varied activities of the American Medical Association, evidenced in its Council on Medical Education, its Council on Pharmacy and Chemistry, its Committee on Legislation, its Board of Public Instruction and its Committee on the Revision of the United States Pharmacopœia could be continued without influencing, in no unmistakable way, the development or the progress of pharmacy in this country.

While the American Medical Association has already accomplished much, it bids fair to be but at the beginning of its possible usefulness, and certainly pharmacists should be interested in these possibilities, and see to it that their own profession and their own associations do not lag too far in the rear. M. I. WILBERT.

THE AMERICAN THERAPEUTIC SOCIETY.

The ninth annual meeting of the American Therapeutic Society, which was held in Philadelphia, May 7th to 9th inclusive, was of more than ordinary interest to the pharmacists of this country, in that matters pharmaceutic were given an unusual amount of consideration.

One of the more interesting sessions of the Society was devoted to a joint meeting with the Philadelphia Branch of the American Pharmaceutical Association, and members of the latter organization, on invitation, attended all of the several sessions of the Therapeutic Society and took an active interest on at least several different occasions.

On the afternoon of the first day, a symposium on the United States Pharmacopœia and the National Formulary was contributed to by: Dr. James M. Anders, who read a paper, entitled "The Pharmacopœia from the Physician's Standpoint;" Mr. H. C. Blair, Ph.G., who read a paper on "The United States Pharmacopœia and National Formulary as Standards for Physicians and Pharmacists," and Mr. M. I. Wilbert, who discussed some of the problems bearing on "The Preparations of the United States Pharmacopœia and National Formulary."

At the joint meeting of the American Therapeutic Society with the Philadelphia Branch of the American Pharmaceutical Association, an exhaustive and very interesting paper, by Dr. Chas. E. de M. Sajous, on "The Auto-Protective Resources of the Body: a New Foundation for Scientific Therapeutics," was read. This interesting communication embodied suggestions for investigations along entirely new lines, and in it the author advances suggestions that may lead to the scientific or rational use of a number of remedies that are now used empirically. This communication was followed by a paper by Prof. Jos. P. Remington on "The United States Pharmacopœia, a Therapeutic Standard," in the course of which the author strongly urged the foundation of a Therapeutic Laboratory, to be devoted to the trying out or proving of the claims made in connection with either official or new remedies.

This suggestion was referred to the Council of the American Therapeutic Society, with a favorable recommendation for their further consideration.

The joint meeting was followed by a reception to the members of the American Therapeutic Society and their friends, by the Pharmacists of Philadelphia. The committee on arrangements consisted of Wm. L. Cliffe, A. T. Pollard, H. C. Blair, R. H. Lackey and O. W. Osterlund, all of them actively engaged in the retail drug business, and all prominent members of the Philadelphia Association of Retail Druggists.

The reception was given in the Clover Room of the Bellevue-Stratford Hotel, and was altogether a most enjoyable and most successful affair. Many of the physicians present expressed themselves as being delighted with the general arrangement for this pleasant social diversion, and the occasion cannot help but add force to the now very widespread tendency for a better understanding between the physician and the pharmacist.

Another of the more interesting features of the meeting was an exhibition of U.S.P. and N.F. preparations made by members of the Philadelphia Branch of the American Pharmaceutical Association.

This exhibition was critically examined by a number of the members and visitors who attended the several sessions of the society, and the several articles were generally commented on favorably by all.

In addition to some fifty U.S.P. and National Formulary preparations the members of the local branch also exhibited a number of dosage forms of compound acetanilide powder and of phenolphthalein. These dosage forms included solutions, granular effervescent powder, pills, capsules, tablet triturates, compressed tablets, lozenges and paper cachets, all made by the ordinary pharmacist. The suggestiveness of this particular portion of the exhibition was much appreciated and liberally commented on by a number of medical men who were present. M. I. W.

REPORT OF THE THIRTY-FIRST ANNUAL MEETING OF THE PENNSYLVANIA PHARMACEUTICAL ASSOCIATION.

By C. H. and M. R. LaWall.

The Thirty-first Annual Meeting of the Pennsylvania Pharmaceutical Association was held on June 23, 24 and 25, 1908, at Paxinosa Inn, which is situated on the top of Weygadt Mountain, just

outside of Easton, Pa. It was attended by the largest number of members seen at these meetings in recent years, various branches of the business and professional sides of pharmacy being represented by leading members.

On Tuesday, June 23d, at 3 P.M., President C. B. Lowe called the first session to order. The venerable secretary, Dr. J. A. Miller, having died since the last annual meeting, his duties were performed by Acting Secretary L. L. Walton, of Williamsport, who read the secretary's annual report, in which the acquisition of seventy-six new members was chronicled.

Owing to the absence of the treasurer, Mr. J. L. Lemberger, the reading of the treasurer's report was postponed, pending the arrival of the report by express.

The report of the Executive Committee was read by the chairman, Mr. L. L. Walton, and a statement was made regarding the growth of the Association during recent years, and the methods which have been employed to increase the membership. Acting Secretary Walton then read a communication from the N.A.R.D. regarding the propaganda work.

President Lowe appointed a Committee on Nominations, and also appointed a committee to draft resolutions upon the death of Dr. J. A. Miller, who had filled the position of secretary during the thirty years of the existence of the Association. The president then called attention to a movement against the reappointment of W. L. Cliffe as a member of the Pennsylvania State Examining Board, and the importance of impressing Governor Stuart of Pennsylvania with the necessity of continuing him in office. Upon motion, it was decided to draft a telegram to be sent to the Governor, officially expressing the sentiments of the Association in behalf of Mr. Cliffe.

President Lowe announced that the secretary of the Retail Druggists' Association of Easton had extended an invitation to the members and their wives to take a trolley ride around Easton on Wednesday at 2 P.M., and that the President of Lafayette College had also given an invitation to the members to visit that institution.

Acting Secretary Walton then called upon those delegates from other bodies for whom credentials had been regularly received. The National Wholesale Druggists' Association was represented by Dr. A. W. Miller, of Philadelphia. Mr. W. L. Cliffe, of Philadel-

phia, spoke in behalf of the A.Ph.A., and Mr. Walter Rothwell, of Hatboro, spoke for the Montgomery County Retail Druggists' Association. The Philadelphia Association of Retail Druggists was represented by F. M. Apple, of Philadelphia.

The Committee on Resolutions concerning the re-appointment of W. L. Cliffe then offered a report which was unanimously approved by a rising vote, and the secretary was instructed to telegraph the same in full to Governor Stuart.

Mr. J. W. England responded to the call for delegates in behalf of the Alumni Association of the Philadelphia College of Pharmacy. Mr. Charles Rehfuss, of Philadelphia, in speaking for the N.A.R.D., called attention to the expectations that the coming meeting in Atlantic City would be the largest in the history of that Association.

The President then read a congratulatory telegram from Dr. H. M. Whelpley, of St. Louis. The delegates from the P.P.A. to other bodies were then called upon. Mr. G. A. Gorgas stated that while he was a delegate to the New York Association, he was unable to attend, on account of the date of the meeting conflicting with that of the Pennsylvania Association. Dr. W. F. Horn, of Carlisle, reported having attended the meeting of the Maryland Association as a delegate from the Pennsylvania meeting. Mr. William L. Cliffe reported on behalf of the delegates to the Pennsylvania Medical Association at its annual meeting, held at Reading, Pa., in October, 1907. He stated that an exhibit had been made of the preparations of the U.S.P. and N.F., provided by members of the Philadelphia Branch of the A.Ph.A., and previously shown at the meeting of the American Medical Association at Atlantic City. This exhibit was in constant charge of the members of the committee, all of whom labored assiduously to further its objects. Mr. Cliffe stated that the exhibit had attracted great interest among the physicians in attendance at the convention, and that it was personally visited by a great number of the most prominent physicians in the State, who enrolled their names on its register. The Committee unanimously recommends the repetition of this method of representing the P.P.A. at this year's meeting of the State Medical Association. At the conclusion of this report, Mr. L. L. Walton stated that the P.P.A. had expended the money, and that the delegation had given freely of their time, and that the profitable end of this class of work had been particularly shown by the interest developed

among the physicians in his locality regarding the preparations which had been exhibited.

A paper was read by Prof. Joseph P. Remington, entitled "Redivivus." Mr. B. E. Pricthard then read a paper which had been loaned by Dr. J. C. Lange, Dean and Professor of Materia Medica of the Western Pennsylvania Medical College, entitled "Advertised Remedies and the Manufacturing Chemists and Pharmacists."

Mr. Joseph W. England read a paper, entitled "What of the Future of Medical Practice?"

A session was held on Tuesday evening, at which the Association was officially welcomed by the Mayor of Easton. The report of the Committee on Resolutions concerning the death of Dr. J. A. Miller was ready, but its official presentation was postponed until Wednesday at 11 A. M., when an opportunity would be afforded those members who wished to speak in behalf of the valuable services of the deceased secretary.

Mrs. W. E. Lee, of Philadelphia, replied in behalf of the ladies to the address of welcome by the Mayor of Easton. Dr. A. W. Miller replied on behalf of the Association itself. Mr. W. L. Cliffe, of Philadelphia, expressed his personal thanks for the action of the Association taken at the afternoon meeting in sending a telegram to Governor Stuart, and gave a short history of the work of the Board of Pharmacy as recently done, and stated that they were in a better position to do good work than ever before, as they now have the necessary funds, and that the Board might be considered as trustees for the protection of the public, working under the pharmacy laws.

Then followed the reading of the President's address, with Second Vice-President Croll Keller in the chair. Dr. Lowe, in his annual address, recommended that Dr. J. A. Miller's portrait and obituary notice be published in the forthcoming volume of the Proceedings of the Association, and that the resolutions that were to be presented be engrossed and framed and forwarded to the family of the deceased.

He commended the work of the Executive Committee, the voluminous and valuable report of the Committee on Adulterations, and the work of the Committee on Papers and Queries. He spoke highly of the work of the State Pharmaceutical Examining Board, and asked that the Committee on Legislation be instructed to draft a bill providing for the filling of vacancies on the State Board by

the Governor from a list of names submitted to him by the State Association.

He spoke briefly of the Pure Food and Drugs Act and of the Sherman Anti-Trust Law in its relation to pharmacy.

He recommended the renewal of the annual appropriation of twenty-five cents per member for all members in good standing on July 1st, to be paid to the N.A.R.D.

He commended the present efforts to increase the cordiality of the relations between the pharmaceutical and the medical professions, which are being made by the various committees on propaganda. He spoke of the necessity for a new and revised edition of the N.F., which had been given such great legal importance by the enactment of the Food and Drugs Act.

He also dwelt upon the increase of fraternal relations between the physicians and pharmacists. The question of shorter hours for clerks was discussed, with especial reference to Sunday closing hours.

The necessity for increasing the membership was also emphasized.

Then followed the President's reception, with dancing and refreshments.

The second official session of the Association was held on Wednesday morning, June 24, at 10.30. Mr. W. L. Cliffe presented the report of the Committee on Legislation in the absence of the chairman, J. C. Wallace, of New Castle, Pa. Mr. Cliffe reported that nothing of importance had occurred on account of there being no session of the Legislature since the last Association meeting.

The report of the Committee on Trade Interests was presented by Chairman Richard H. Lackey, of Philadelphia, who presented an excellent report, giving details regarding price fluctuations and trade conditions, interesting and valuable. This report was made up after extensive correspondence with leading wholesale and supply houses. It was referred to the Committee on Publication.

A very comprehensive and voluminous report was presented by Mr. C. E. Vanderkleed, chairman of the Committee on Adulterations. In order to economize time, he gave a synopsis of the report, abstracting portions here and there to give a general idea of its character. This report was made up by the committee after correspondence with various firms, and also with pharmacists who are

constantly testing their products. The report was discussed by Mr. F. M. Apple and Dr. Lowe, especially with reference to the purchasing of goods upon an absolute guarantee without further investigation of the character of the product.

Chairman LaWall, of the Committee on Papers and Queries, reported having in the neighborhood of fifty papers, of which more than half the authors were present. He announced that at the sessions for the reading of papers, a time limit would be established for the reading and discussion of the papers, and that preference would be given to those of which the authors were present at the meeting. He spoke of the added value of the Proceedings on account of the publication of these papers, and also of the standing gained by the Association by reason of the frequent publishing of the papers read at these meetings in the pharmaceutical journals, full credit always being given to the Association.

The report of the Committee on Botany was presented by Dr. A. W. Miller.

The report of Treasurer Lemberger was then read, which stated that all claims had been paid and that the Association still has a generous balance in the bank. There are about 800 open accounts, including the seventy new members added during the past year. The receipts from every source during the year amounted to $1,392.50. Unexpended balance at the present time amounts to $1,154.09. The report concluded with a touching tribute to Dr. J. A. Miller, the deceased secretary, who had always been referred to as "the yoke-fellow of the treasurer."

[*To be continued.*]

PHILADELPHIA COLLEGE OF PHARMACY.

MINUTES OF THE QUARTERLY MEETING, HELD JUNE 29, 1908.

The quarterly meeting of the members of the Philadelphia College of Pharmacy was held at 4 P.M. in the Library. In the absence of the president, the first vice-president, M. N. Kline, presided. The minutes of the annual meeting, held March 30, 1908, were read and approved. The minutes of the Board of Trustees for March 3d, April 7th, May 5th and 14th were read and approved.

The Committee on Membership reported several members who

were delinquent in paying the annual dues and were liable to have their membership forfeited. The matter was continued to the committee for further effort to secure payment.

A member called attention to the fact that a corresponding member elected some years ago had since removed to the United States. The by-laws of the college provide that no corresponding member shall continue as such after removing to the United States, but may be elected to active or associate membership. The subject was referred to the Committee on Membership for further correspondence.

A report of the delegates to the meeting of the New Jersey Pharmaceutical Association was made by the chairman, George M. Beringer, who stated that the program was replete with entertainments, papers, committee reports, etc.

The subject of legislation received considerable attention, as during the year there had been passed by the legislature a modification of the State Food and Drug Law enacted last year, and likewise a bill aimed to prevent the sale of narcotic drugs. The latter bill is not satisfactory to the drug interests, and at the next session of the legislature, it is hoped that a general anti-narcotic bill will be passed that will properly control the sales of all narcotic drugs. Professors LaWall and Cook, of the college, contributed interesting papers, and Prof. Henry Kraemer was elected an honorary member of the Association. The next meeting of the Association will be held at Lake Hopatcong.

The delegates to the Pennsylvania Pharmaceutical Association, through the chairman, Prof. C. B. Lowe, made an interesting verbal report.

Prof. Henry Kraemer, who had been appointed to represent the college at the commencement and installation of the new president of Pennsylvania State College, reported as follows: He stated that the universities and colleges of the State were well represented, and that the commencement exercises were very interesting. The address by Dr. Edwin E. Sparks, the newly elected president, on "The Economic Obligation of Public Education," showed the value of technical education, not only to the manufacturer, but to the State and the nation. Addresses were also made by Dr. A. C. Humphreys, president of Stevens Institute of Technology, and Dr. Paul Shorey, head of the department of Greek, the University

of Chicago. The annual address before the Phi Kappa Phi, on "Dr. Evan Pugh," by Prof. A. A. Breneman, of New York, was of special interest. Dr. Pugh was the first president of State College, and an eminent chemist, he having first conclusively proved that plants do not receive their nitrogen supply from the air.

Another feature that deserves mention was the impression made on the visitor by the students, whether at baseball, or at their entertainment, or in their college work. They seemed to be all-round men, well developed physically and well equipped mentally.

A pleasing feature of the exercises was the presence of General Beaver, who is chairman of the Board of Trustees of State College.

A very interesting discussion followed Professor Kraemer's report, which was participated in by Messrs. Hahn, Poley, Lowe, Sadtler, Wilbert and Kline.

The Historical Committee, by its chairman, George M. Beringer, presented, on behalf of Mr. Joseph Jacobs, of Atlanta, Georgia, some invoices of drugs bought during the Civil War.

Professor Kraemer submitted the names of five gentlemen for honorary membership, which, under the rules, lie over for action until the next meeting.

The following appointments were subsequently made by President French:

Delegates to the coming meeting of the American Pharmaceutical Association: Joseph P. Remington, Henry Kraemer, Samuel P. Sadtler, C. B. Lowe, and M. I. Wilbert; and as alternates, M. N. Kline, E. M. Boring, G. M. Beringer, W. L. Cliffe, and J. W. England.

Committee on Nominations: Jacob M. Baer, W. A. Rumsey, C. B. Lowe, F. X. Moerk and O. W. Osterlund.

Historical Committee: George M. Beringer, Henry Kraemer, Thomas S. Wiegand, M. I. Wilbert and J. M. Baer.

Committee on Necrology: Samuel P. Sadtler, Henry Kraemer and Gustavus Pile.

ABSTRACTS FROM MINUTES OF BOARD OF TRUSTEES.

March 3, 1908.—The Committee on Property reported that the new Pure Food and Drug Laboratory was nearly completed. The special Finance Committee reported a number of contributions for the new laboratory, special mention being made of the good work done

by the Women's Organization of the Philadelphia Association of Retail Druggists, to whom the thanks of the Board were extended.

The Historical Committee exhibited part of the display that was to be sent to Harrisburg.

New business.—Mr. French referred to Founders' Week to be celebrated in the Fall.

Samuel C. Henry was elected to active membership. Mr. Beringer called attention to the necessity for a case of medicines for use in emergencies and offered to supply the necessary medicines without charge.

April 7, 1908.—Mahlon N. Kline was elected chairman, George M. Beringer vice-chairman, and Jacob S. Beetem registrar for the ensuing year.

The standing committees for the year were appointed. Committee on Property reported the new laboratory building as practically completed.

The Committee on Appropriations submitted their estimate of the expenses for the coming year, and the Committee on Supplies submitted an estimate for the necessary supplies for the New Pure Food and Drug Laboratory.

The Committee on Announcement recommended that the College Announcement be issued hereafter as a bulletin or periodical, not less than four times a year, without advertisements. The advantages of this plan were freely discussed and the recommendation adopted.

The Special Finance Committee reported that additional contributions had been received for the new laboratory.

May 5, 1908.—Several recommendations in the annual report of the Curator, referred to the Board of Trustees, were respectively referred to the Committees on Property, Instruction, Museum and Herbarium, to report at a later meeting of the Board.

The Committee on Instruction submitted a lengthy report containing a number of recommendations, which, after being separately read and discussed, were adopted. The treasurer presented a report for the year ending April 30, 1908.

May 14, 1908.—An adjourned meeting was held to receive the report of the Committee on Examinations.

C. A. WEIDEMANN, M.D.,
Recording Secretary.